



Koala Habitat Protection Guideline

Implementing State Environmental Planning Policy
(Koala Habitat Protection) 2019



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Introduction

The koala (*Phascolarctos cinereus*) is an iconic Australian marsupial. In NSW koala populations are in decline and vulnerable to extinction. As with many threatened species, koalas and their habitat are managed under a variety of legislation and policy. In the NSW planning system, a dedicated state environmental planning policy was introduced in 1995 to protect koala habitat.

State Environmental Planning Policy (Koala Habitat Protection) 2019 (the SEPP) encourages the conservation and management of koala habitat to ensure populations remain in their present range and the trend of population decline is reversed. The SEPP is made under the *Environmental Planning and Assessment Act 1979* (EP&A Act) and replaces the previous State Environmental Planning Policy No 44 - Koala Habitat Protection.

This Guideline is made in accordance with the SEPP. It aims to guide consent authorities, professionals and the community to understand and implement the requirements of the SEPP. Its principal functions are to set out the requirements for the protection of koala habitat through the:

- preparation of Koala Plans of Management (KPoMs).
- preparation and assessment of development applications which the SEPP applies to.

This Guideline has three parts with supporting appendices.

Part 1 – Background

Provides background information and an introduction to the application of the SEPP and this Guideline.

Part 2 –Koala Plans of Management

Provides guidance on how to make koala plans of management.

Part 3 – The Development Assessment Process under the SEPP

Establishes the development assessment process and requirements, including criteria to be followed by applicants and considered by consent authorities assessing the development.

Part 1. Background

1.1 Aim of the SEPP

SEPP (Koala Habitat Protection) 2019 seeks to address the declining status of koalas in NSW through better conservation and management of koala habitat as part of the planning and assessment process. The overarching aim of the SEPP is to:

“... encourage the conservation and management of areas of natural vegetation that provide habitat for koalas to support a permanent free-living population over their present range and reverse the current trend of koala population decline.”

The aim of the policy will be achieved through this Guideline by:

- defining what constitutes core koala habitat.
- outlining the circumstances where a consent authority must have regard to the matters set out in the guideline.
- encouraging the development of Koala Plans of Management (KPoMs). These plans provide the best opportunity to deliver strategic conservation outcomes for koala populations in NSW. They play a critical role in helping to understand koala values at a landscape scale and avoiding the types of issues that can arise through site-based, incremental impacts, such as the loss of important habitat linkages, or intensifying land use within areas that are likely to lead to population decline.
- requiring that a consent authority's determination of a development application is consistent with a KPoM or Part 3 of this Guideline where there is no KPoM.

1.2 Purpose of this Guideline

The purpose of this Guideline is to support the SEPP's aim by:

- Guiding councils on how to prepare KPoMs, including what they should contain and how they can be structured.
 - This information aims to make the process of developing and approving KPoMs more efficient and to provide councils with a clear understanding about how a KPoM can operate.
- Defining criteria and requirements for applicants to follow and consent authorities to implement when preparing and assessing development applications when a council KPoM does not apply to that land.
 - This information aims to simplify the development assessment process and establish a standard for how these applications can meet the requirements of the SEPP.
 - They outline a set of requirements to ensure that development on land identified on the *Koala Development Application Map* adequately avoid, minimise and manage potential impacts to koalas and their habitat.
 - They outline the minimum survey effort required to establish whether 'core koala habitat' is present where a land owner/proponent chooses to undertake a fauna and flora survey.
- Guiding councils on how to implement the Ministerial Direction 2.6 Koala Habitat Protection.
- Informing the wider community about the role of the SEPP in the planning system to help protect koalas and their habitat.

1.3 Principles of this Guideline

This Guideline recognises that what is needed to protect koala habitat differs across the State. As a result, they are intended to allow some flexibility. Seven key planning principles have been developed to help define the criteria and requirements set out in this Guideline. They are:

1. Understand and identify koala habitat values including landscape connectivity (such as habitat extent and habitat linking areas).
2. Avoid inappropriate land uses or intensifying land uses in koala habitat areas through appropriate landscape planning and site selection.
3. Encourage the proper conservation and management of areas of natural vegetation that provide habitat for koalas.
4. Minimise potential impacts to koalas and their habitat through design that avoids fragmentation or direct loss of koala habitat, and maintains the function of the koala habitat.
5. Implement best practice measures to manage identified threats to koalas and their habitat (such as those listed in Part 3).
6. Use compensatory (i.e., offsetting) measures only where they can be shown to meet the aim of the SEPP.
7. Use adaptive management strategies to monitor, evaluate and deliver appropriate planning outcomes for koalas in their local setting.



1.4 Where does this Guideline apply?

The Guideline applies wherever the SEPP applies.

The development control provisions of the SEPP apply to development applications relating to land within a council area listed below and:

1. Where there is an approved Koala Plan of Management for the land
 - a. the development application must be consistent with the approved koala plan of management that applies to the land.
2. Where there is no approved Koala Plan of Management for the land, if the land
 - a. is identified on the Koala Development Application Map, and
 - b. has an area of more than 1 hectare, or
 - c. has, together with any adjoining land in the same ownership, an area of more than 1 hectare, whether or not the development application applies to the whole, or only part, of the land.

The SEPP (as per Clause 5(1) and Schedule 1) applies to land within the following council areas:

Armidale Regional, Ballina, Bathurst Region, Bega Valley, Bellingen, Berrigan, Blayney, Blue Mountains, Bourke, Brewarrina, Byron, Cabonne, Campbelltown, Central Coast, Central Darling, Cessnock, Clarence Valley, Coffs Harbour, Coonamble, Dungog, Edward River, Eurobodalla, Federation, Forbes, Gilgandra, Glen Innes Severn, Goulburn Mulwaree, Greater Hume, Gunnedah, Gwydir Shire, Hawkesbury, Hilltops, Hornsby, Inverell, Kempsey, Ku-ring-gai, Kyogle, Lake Macquarie, Leeton, Lismore, Lithgow, Liverpool, Liverpool Plains, Lockhart, Maitland, Mid-Coast, Mid-Western Regional, Moree Plains, Murray River, Muswellbrook, Nambucca, Narrabri, Narrandera, Narromine, Newcastle, Northern Beaches, Oberon, Parkes, Port Macquarie-Hastings, Queanbeyan-Palerang, Port Stephens, Richmond Valley, Shoalhaven, Singleton, Snowy Monaro Regional, Snowy Valleys, Tamworth Regional, Tenterfield, Tweed, Upper Hunter, Upper Lachlan, Uralla, Wagga Wagga, Walcha,

Walgett, Warren, Warrumbungle, Weddin, Wentworth, Wingecarribee, Wollondilly, Wollongong, Yass Valley.

However, the SEPP does not apply to land dedicated, reserved or acquired under the *National Parks and Wildlife Act 1974* or to land dedicated under the *Forestry Act 1916* as a State forest or flora reserve.

1.5 Koala Habitat Definitions

Definition of Core Koala Habitat under the SEPP

The definition of core koala habitat is specified in clause 4 of the SEPP (see below).

core koala habitat means—

- (a) *an area of land where koalas are present, or*
- (b) *an area of land—*
 - (i) *which has been assessed by a suitably qualified and experienced person in accordance with the Guideline as being highly suitable koala habitat, and*
 - (ii) *where koalas have been recorded as being present in the previous 18 years.*

Notes about the definition:

- “An area of land” includes both a development footprint and the broader area of land on which the development is proposed (i.e. the subject lot). The controls within the SEPP apply to both direct and indirect impacts and all habitat on the site area. Therefore, the entire lot needs to be considered even if no vegetation is to be cleared.
- Appendix C to this Guideline outlines the survey methodologies to be applied to establish whether an area contains core koala habitat (for councils when preparing KPOMs and development application proponents wishing to undertake a survey to demonstrate their land does not contain core koala habitat). Appendix C also defines *highly suitable habitat* and details the procedure for identifying it.

1.6 SEPP Maps

The **Koala Development Application Map** identifies areas that have highly suitable koala habitat and that are likely to be occupied by koalas. Landholdings captured by the map (whether the whole lot or only a portion is covered) need to consider the impact of their development on koalas or need to undertake a survey if they believe the map has been incorrectly applied to their land (in accordance with Appendix C). The Koala Development Application Map applies where there is no approved Koala Plan of Management for the land and identifies which areas trigger the development assessment requirements for core koala habitat.

The **Site Investigation Area Map for Koala Plans of Management** identifies areas that are likely to have koala use trees and excludes areas with a low probability of koala habitat. This map identifies areas councils should investigate when identifying core koala habitat in Koala Plans of Management and the extent to which core koala habitat can be identified.

The maps can be viewed at

<https://webmap.environment.nsw.gov.au/Html5Viewer291/index.html?viewer=KoalaSEPP.htm5>

How core koala habitat is treated under the SEPP

Core koala habitat

Core koala habitat as defined in the SEPP informs the plan of management and development assessment process. When core koala habitat is mapped through approved KPoMs, the GIS data for any core koala habitat identified under the plan must be submitted to the Department. This data will be used to update the Native Vegetation Regulatory Map under the *Local Land Services Act 2013* and the Biodiversity Values Map made under the Biodiversity Conservation Regulation 2017.

KPoMs identify core koala habitat through applying the survey methodology at Appendix C.

Councils will establish provisions for core koala habitat in their KPoMs which relevant development applications must comply with in order to be approved.

Alternatively, on land where there is no approved KPoM, if a landholder wishes to conduct a survey in accordance with Appendix C, rather than using the Koala Development Application Map, the survey will examine the land for the presence of core koala habitat.

1.7 Legislative Framework

In addition to the SEPP, koalas and their habitat are protected by an interrelated framework of legislation. The legislation includes the *Biodiversity Conservation Act 2016* (BC Act), where koalas are protected as one of many threatened species, and by the State planning policy framework under the *Environmental Planning and Assessment Act 1979* (EP&A Act). Their habitat is indirectly protected by the *Local Land Services Act 2013* (LLS Act) and by *State Environmental Planning Policy (Vegetation in Non-Rural Areas) 2017* (Vegetation SEPP).

It is important to note that compliance with this Guideline and the SEPP does not affect a person's obligation to separately consider the requirements of other related legislation.

Commonwealth Environment Protection and Biodiversity Act 1999

The *Environment Protection and Biodiversity Conservation Act 1999* (the EPBC Act), the Australian Government's central piece of environmental legislation, lists the NSW, Queensland and ACT populations of koalas as vulnerable species. This means that approval is needed under this Act for proposed actions that will have, or are likely to have, significant impact on koalas. According to the 'EPBC Act referral guidelines for the vulnerable koala,' the loss of 20 hectares or more of high-quality habitat critical to the survival of the species is highly likely to have a significant impact for the purposes of the EPBC Act while proposals relating to loss a lesser amount or lesser quality habitat are less likely to need an approval under this Act.

Environmental Planning and Assessment Act 1979

The EP&A Act provides the framework for the NSW planning system, including the creation of policies for specific matters of state significance called State Environmental Planning Policies (SEPPs). It also requires consent authorities such as local councils to take into consideration a range of factors when determining whether to approve a development including the likely environmental impacts of a development on natural and built environments. The EP&A Act interacts with the BC Act in that the threatened species 'test of significance' required under the BC Act and the Biodiversity Assessment Method must be considered in assessing relevant development applications or activities.

Biodiversity Conservation Act 2016

The purpose of the BC Act is to maintain a healthy, productive and resilient environment, consistent with the principles of ecologically sustainable development. The Act provides a range of protection measures for threatened species in NSW, including the koala.

These protection measures primarily operate through the development assessment process managed under the EP&A Act. The BC Act makes provision for a Biodiversity Values (BV) Map that is developed by the Environment Agency Head. Core koala habitat identified in a KPOM approved under the SEPP is one of the types of land that is included on the BV Map. The BV Map can be viewed in the [Biodiversity Values Map and Threshold \(BMAT\) Tool](#). The BC Act requires the applicant to undertake a biodiversity impact assessment in accordance with a methodology known as a Biodiversity Assessment Method (BAM) for a range of development proposals including any development proposal that:

- involves clearing any native vegetation on land mapped as having biodiversity values.
- exceeds the clearing area thresholds (cl. 7.2 BC Regulation) on any land.
- is otherwise likely to significantly affect threatened species (or their habitats).

This assessment must set out measures to (preferentially) avoid, minimise, or (lastly) offset any impacts to biodiversity value (any offsets are measured as credits and managed through the Biodiversity Offsets Scheme). Development approvals must include a condition that requires the offsets to be met prior to the development proceeding. Where the impacts of a proposal are 'serious and irreversible', a consent or determining authority must refuse consent for development (except for state significant projects where it is a consideration before determining the proposal). Impacts to koalas and their habitat generally do not qualify as 'serious and irreversible' impacts. The requirements under the BC Act are in addition to those required under the SEPP.

Local Land Services Act 2013

The LLS Act provides a new regulatory framework for the management of native vegetation in NSW. It applies to rural land outside the Sydney metropolitan area and Newcastle LGA.

The amendment to the LLS Act also introduced a Land Management Code which enables code-based clearing of vegetation on regulated land. Vegetation on certain regulated land cannot be cleared under this code. This land is classified 'Sensitive Regulated Land' on the NVR Map and is based on a variety of factors, including whether the land is core koala habitat in a plan of management made under the SEPP. Where code-based clearing is not allowed, an approval is required from the newly established Native Vegetation Panel through the BAM process.

Land which has been identified as 'core koala habitat' (consistent with the corresponding definition in the SEPP) is designated Category 2 - Sensitive Regulated Land and therefore cannot be cleared under the exempt code. In addition, Private Native Forestry cannot be conducted on this land (as set out in the PNF Codes of Practice). However, there are a range of allowable activities that can occur without consent, and consent for other works can be sought from the Native Vegetation Panel.

Vegetation in Non-Rural Areas SEPP

The State Environmental Planning Policy (Vegetation in Non-Rural Areas) 2017 (Vegetation SEPP) sets up a framework for the clearing of vegetation not associated with a development application in certain areas. It generally applies where Part 5A 'Land management (native vegetation)' of the LLS Act does not apply: the Sydney metropolitan area and Newcastle LGA, as well as all other land in NSW that is zoned for urban or environmental purposes, except national parks). The two pieces of legislation perform comparable functions in relation to regulating native vegetation clearing. Where

development consent is not required for the clearing of native vegetation, the Vegetation SEPP requires that clearing above specified thresholds is approved by the Native Vegetation Panel constituted under the LLS Act. Below these thresholds, the Vegetation SEPP allows councils to regulate clearing through a permit system

1.8 Monitoring and Review

This Guideline will be reviewed within 24 months of publication on the Department's website and may be updated if necessary. The SEPP's maps may also be updated (through a SEPP amendment process) from time to time as new information becomes available.

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Part 2. Koala Plans of Management

A plan of management for koalas that covers an entire LGA (or part of an LGA) is referred to as a koala plan of management (KPoM). The purpose of KPoMs is to encourage and enable councils to take a strategic approach to the identification and protection of koala habitat.

There are several key assumptions underpinning the approach adopted in this part:

- Priority should be given to protecting areas that meet the definition of core koala habitat as these areas are known to be used by koalas and are therefore considered the most important in delivering on the overall aim of the SEPP.
- Consideration of areas with other habitat values may still be important. These areas may serve certain functions necessary for the long-term survival of koala populations; for instance, habitat linkages, impact buffers or sites that contribute sufficient habitat areas for population expansion and recovery.
- Development controls should be tightest within areas of core koala habitat, with a focus on avoiding direct loss of habitat, corridors and other refugia.

Effect of Koala Plans of Management

Clause 8 of the SEPP specifies that where there is an approved KPoM for land to which a development application applies, the council's determination of the development application must be consistent with the approved KPoM. This includes all land, not only land over 1 hectare within core koala habitat as per the repealed SEPP 44.

Land that is identified as 'core koala habitat' in the KPoM, consistent with the definition in the SEPP will be:

- identified as category-2 sensitive regulated land on the Native Vegetation Regulatory Map under the *Local Land Services Act 2013* (LLS Act) once approved by DPIE. This means the LLS Act's Land Management (Native Vegetation) Code does not apply and clearing native vegetation must be approved by the Native Vegetation Panel unless it is associated with a limited range of allowable activities set out in the LLS Act.
- included on the Biodiversity Values Map under the Biodiversity Conservation Regulation 2017. This means that a development proposal in core koala habitat or the clearing of native vegetation in areas where SEPP (Vegetation in Non-Rural Areas) 2017 applies triggers the Biodiversity Offset Scheme Threshold and will require Native Vegetation Panel approval.

The adoption of a plan of management of either type does not affect the applicant's or council's responsibility to consider the requirements of any other related legislation.

2.1 Process for Koala Plans of Management

KPoMs are prepared under Part 3 of the SEPP and must be developed in accordance with this Guideline. The Coordinator General of the Environment, Energy and Science Division of the Department of Planning, Industry and Environment must be consulted during the process of developing a KPoM. Council should also identify and consult with key stakeholders, such as community groups and relevant agencies such as Local Land Services, while developing the KPoM.

Council is required to exhibit the proposed KPoM for a minimum period of 28 days. A letter or email must be sent to all landholders in proposed core koala habitat, outlining any impacts such a designation would have on their ability to undertake activity on their land and the exhibition period during which they might make a submission.

The plan, and all required documents, will then be referred to the Chief Executive Officer of Local Land Services and the Coordinator General of the Environment, Energy and Science Division of the Department. The plan must be approved by the Secretary of the Department of Planning, Industry and Environment (DPIE) before it takes effect.

If a council is interested in preparing a KPoM, DPIE and the Environment, Energy and Science Group of the DPIE should be contacted. Councils are also required to liaise closely with the Environment, Energy and Science Group of the DPIE while developing the KPoM (as per clause 12 of the SEPP), particularly with respect to the adequacy of studies and survey, prior to proceeding to the development of management strategies. Councils are also encouraged to liaise with Local Land Services when preparing a KPoM to ensure the views of all stakeholders are considered throughout the process.

2.2 Definitions of Koala Habitat in Broader Landscape Terms

Councils may identify core koala habitat consistent with the definition in the SEPP if it is also on land identified on the Site Investigation Area for Koala Plans of Management Map.

Councils are encouraged to identify other types of koala habitat which do not meet the definition of core koala habitat. These other types of koala habitat do not need to occur within the bounds of the Site Investigation Area for Koala Plans of Management. This is important since the definition of core koala habitat may be limiting at a landscape level, where the following issues arise:

- Identification of habitat at a landscape level generally requires different types of data available at a scale that can be reasonably gathered and applied to broad-scale areas. The state-wide Koala Habitat Information Base provides data to help councils identify koala habitat in their local government area and can help to guide local mapping efforts.
- KPoMs aim to deliver strategic conservation outcomes which require consideration of a broader set of attributes than species presence (noting that some areas which may not currently be occupied by koalas may be important in terms of connectivity, dispersal, seasonal movement, drought or fire refuge, or recovery). KPoMs provide the most effective means of preventing the types of impacts and levels of population declines that are more likely to result from site-based, incremental or cumulative impacts.

At a landscape scale, habitat assessments should identify all habitat of importance or potential importance to koalas in terms of several factors, not limited to those used to define core koala habitat under the SEPP.

Further discussion of habitat mapping for koala plans of management is provided in Appendix B.

2.3 Part LGA Koala Plans of Management

In some circumstances it may be appropriate to prepare a KPoM for a portion of an LGA rather than for the entire LGA. Plans should focus on those areas where threats to koalas and their habitat are greatest, for example where land uses are expanding or intensifying. Accordingly, whilst councils are encouraged to consider the entire LGA when developing a KPoM, part LGA plans may be appropriate where the study area:

- is of a sufficient size to identify koala habitat, threats, management recommendations and habitat protection mechanisms in a regional context.

- incorporates known koala populations in their entirety.
- utilises both ecological and physical characteristics to determine an appropriate study area boundary rather than relying on cadastral boundaries.
- enables a strategic planning approach to be developed for the management and restoration of koala habitat and the abatement of threats, which meet the aim of the SEPP.

Council should seek advice from the Secretary of DPIE and the Coordinator General of the Environment, Energy and Science Division of the Department of Planning, Industry and Environment to determine if a part LGA KPoM is appropriate for the proposed area. The procedures for preparing a part LGA KPoM should follow those detailed for a whole LGA plan.

The Coordinator General of the Environment, Energy and Science Division of the Department of Planning, Industry and Environment must still be consulted when preparing a KPoM for part of an LGA. Council is encouraged to also consult with Local Land Services. The remaining part of the LGA would remain subject to any other legislative requirements for individual development applications.

2.4 What must be included in a Koala Plan of Management

KPoMs must (at a minimum):

1. Identify and map present koala populations and (if possible) past populations from historical records (from BioNet).
2. Identify and map koala habitat based on the principles in this guideline. Care should be taken to ensure 'core koala habitat' is mapped consistent with the definition in the SEPP to ensure protection in the broader legislative framework. For KPoMs this means the area must also be identified on the Site Investigation Area for Koala Plans of Management Map.
3. Identify threatening processes and aim for no net loss of koala habitat within the area covered by the plan over the long-term.
4. Establish procedures to secure and manage koala populations into the future.
5. Specify any requirements in addition to those required by the Biodiversity Assessment Method for development applications in core koala habitat, and in areas with other habitat types and values.
6. Specify requirements for activity assessments and planning proposals in core koala habitat, and in areas with other habitat types and values.

In meeting the requirements listed above, a KPoM should address the seven key planning principles identified in Section 1.3 of this Guideline.

When the council provides the KPoM for the Secretary's approval, GIS data of any core koala habitat identified in the plan must also be supplied. This is so the core koala habitat can be mapped on the Native Vegetation Regulatory map under the LLS Act and the Biodiversity Values Map made under the Biodiversity Conservation Regulation 2017. Data must be supplied in accordance with the GIS data requirements of the DPIE as published on its website (<https://www.planning.nsw.gov.au/Plans-for-your-area/Local-Planning-and-Zoning/Mapping-standards-and-requirements>).

In addition to GIS data, council must also provide the Department with the submissions report, the results of any surveys, and any other documents which informed the preparation of the KPoM.

More detail regarding the information that should be included in a KPoM is included in Appendix B. Councils can set out development application criteria in the KPoM or choose to apply the development application criteria in Part 3 to mapped areas of koala habitat in the KPoM.

2.5 Consultation requirements for KPoMs

Council is required to exhibit the proposed KPoM for a minimum period of 28 days. During this time, government agencies, local residents and members of the public can comment on the proposed KPoM. It may be appropriate for council to make changes to the KPoM in response to feedback to the exhibition. These changes must be detailed and justified in the submissions report. In addition, council must notify by post or email, all landholders within proposed core koala habitat in the draft KPoM.

Councils must notify landholders of the proposal to designate their land core koala habitat, and clearly detail the implications of core koala habitat should the KPoM be approved (e.g. that the land would become Category-2 Sensitive Regulated Land under the Local Land Services Act 2013, and that private native forestry would be prohibited). The correspondence must clearly state the procedure for landholders who wish to contest the core koala habitat designation. Councils are encouraged to consult with Local Land Services on preparing such correspondence and engaging with landholders.

Landholders who wish to contest proposed core koala habitat on their land must provide evidence to council's satisfaction that the land is not core koala habitat. This is to involve a survey of the land, conducted in accordance with Appendix C, undertaken by a suitably qualified and experienced person (as defined in the SEPP). Alternatively, the landholder may allow council to conduct such a survey. Such objections and any evidence submitted should be detailed in the submissions report, along with council's response which clearly details the action taken (e.g. removing or maintaining the core koala habitat designation) and a justification for the decision.

The submissions report should detail the sentiment and content of submissions, as well as council's response, and must be prepared and provided when the KPoM is submitted for approval, along with any other documents relevant to the plan (such as survey results or local koala studies).

Part 3. The Development Assessment Process Under the SEPP

This part of the Guideline outlines the development assessment requirements for any development application to which the SEPP's Koala Development Application Map applies (or alternatively where a survey has identified the land as core koala habitat) and where there is no approved KPOM in place. This is in areas the SEPP applies and where the land has an area of at least 1 hectare, including adjoining land within the same ownership. This guidance is intended to assist both:

- Applicants in understanding how the SEPP applies to their development, the level of information that is needed to support their development application, and the criteria that needs to be addressed.
- Consent authorities in assessing the adequacy of information supporting a development application and the considerations relevant to their determination.

The requirements of this section are structured into two parts, corresponding with the level of impact to koalas and their habitat arising from the development. If Tier 1 proponents are not able to demonstrate that the development has a low or no direct impact on koalas or koala habitat, they must proceed under Tier 2. Tier 2 requires that a suitably qualified and experienced person as defined in the SEPP must be engaged, and a Koala Assessment Report provided with the development application.

If any native vegetation is to be removed, or the development footprint will impede movement between koala habitat the development automatically becomes Tier 2 development.

3.1 Tier 1 - Low or no direct impact development

The Tier 1 process is for development which can be demonstrated to have low or no direct impact on koalas or koala habitat as follows:

1. indirect impacts that will not result in clearing of native vegetation within koala habitat
2. the development is below the Biodiversity Offsets Scheme threshold under the BC Act
3. there is no native vegetation removal
4. the development footprint will not impede movement between koala habitat
5. adequate mitigation measures such as those listed in Table 1 below are implemented as necessary

If the development cannot meet all criteria above, then it exceeds a low level of impact on koalas and/or koala habitat and the Tier 2 process is triggered.

Management measures to address key risks

Table 1 provides guidance around the types of measures that could be adopted as part of a development application to address the key indirect impacts or risks identified through the assessment. The measures in the table are examples only, recognising that development issues need to be assessed on a case-by-case basis and different councils may seek to apply prescriptions that align with broader considerations. Councils are encouraged to develop requirements within their development control plans that specifically deal with koala management issues as this will provide more detailed, tailored information around what is expected.

Table 1: List of suggested management measures to address key indirect impacts

| Impact | Management measures |
|-----------------------------------|---|
| Dog attack | <ul style="list-style-type: none"> • Restrictions on the movement of dogs, including use of dog and koala proof fencing that effectively contains dogs and excludes koalas, with the provision of koala furniture that allows koalas to escape yards should they gain entry. • Signage and education. • Dogs excluded from koala habitat areas and only allowed off leash in areas established as not being habitat. |
| Vehicle strike | <ul style="list-style-type: none"> • Traffic speed limited as far as possible. • Traffic calming measures and roadside lighting. • Use of koala proof exclusion fencing, with the provision of escape mechanisms should koalas gain access to the road. • Inclusion of koala land bridges and/or underpasses where appropriate and in combination with koala proof exclusion fencing. |
| Drowning in pools | <ul style="list-style-type: none"> • Incorporation of features and koala furniture that allow koalas to escape from pools and the fenced area, such as a shallow ramp or thick, taut rope. • Use of pool fencing that effectively excludes koalas. • No structures near pool fences that allow koala to gain access over fencing. |
| Bushfire | <ul style="list-style-type: none"> • Development and implementation of a bushfire management plan with measures that specifically address risks to koala habitat. • Core koala habitat should not form part of the Asset Protection Zone (APZ). The APZ should occur beyond any koala habitat. • Develop an emergency response plan that identifies key contacts in RFS, local wildlife carers and vets, and list of appropriate Government resources. |
| Introduction or spread of disease | <ul style="list-style-type: none"> • Use of biosecurity and hygiene procedures in instances where vegetation pathogens known to affect koala trees might be spread or introduced. For example, strict enforcement of vehicle wash-down points. |
| Disturbance | <ul style="list-style-type: none"> • Establishment of tree protection zones around any retained koala trees within the site area and preclusion of any development activities within the tree protection zones. • Habitat restoration and strategic plantings to improve connectivity of retained habitat and trees. • Where there may be indirect impacts on koala habitat, use of a suitably qualified koala spotter to inspect habitat prior to any development taking place. • Where koalas are identified, temporary suspension of works that might disturb the koala and/or prevent it from moving to adjacent undisturbed habitat of its own volition. • Koalas should be protected from disturbance and indirect impacts via appropriate exclusion fencing from urban areas and roads. • Fencing of urban areas should still allow for koalas to disperse through the koala habitat in the landscape and to connect with other koalas and koala colonies. |

| Impact | Management measures |
|-------------------------|--|
| Impediments to movement | <ul style="list-style-type: none"> Retention of koala habitat corridors with the principle of minimising adverse impacts and retaining existing corridors. Infrastructure or development to be designed in a way that is reliably known to not impede safe koala movement. For instance, overpasses or underpasses as part of road design. Infrastructure or development to be designed in a way that facilitates koala movement by incorporating retention and planting of koala trees, where it is safe to do so. For example, retaining and planting paddock trees, trees along fencelines and remnant patches of bushland on properties. In some instances, there may be a need to reduce koala movement into development areas where they are more at risk (e.g. through the use of exclusion fencing). |

3.2 Tier 2 - development applications impacting koalas and/or habitat

Development applications which are likely to impact koalas and/or koala habitat and do not meet the criteria for Tier 1 must address the following criteria against each of the seven planning principles. The criteria are summarised below.

A Koala Assessment Report addressing the criteria must accompany any development application to which Tier 2 applies. A suggested template for a Koala Assessment Report is provided in section 3.3 below. The Koala Assessment Report must be prepared by a suitably qualified and experienced person.

Principle 1. Understand koala habitat values

Criteria 1. *The site is established as core koala habitat if it occurs on the Koala Development Application Map or by undertaking a site area survey undertaken in accordance with the methods outlined in Appendix C of this Guideline.*

Criteria 2. *Further analysis is undertaken in order to understand the broader values of the core koala habitat, including information about the koala population using the habitat and any specific ecological functions the habitat might serve.*

Key questions which need to be addressed in meeting this criterion include:

- What is known about the size, health and viability of the koala population?
- What is known about the generational persistence of the local koala populations through an analysis of records to determine population trends and persistence over time?
- What is the broader landscape context of the habitat within the site area? For instance, is it contiguous with broader areas of habitat or relatively isolated, and what are the likely regional movement patterns of koalas using the site area?
- Does the site area contain particular values that are likely to serve an important ecological function for koalas? For instance, providing linkage between other habitats, or serving as a habitat buffer to broader areas?
- Could the habitat area and/or koala population using the site area be important to the recovery of the koala? For instance, does the habitat contain features that might provide refuge during droughts, extreme heat, or fire? Or is the population considered to be healthy, robust or showing relatively low incidence of disease?

- Drawing on evidence presented, what significance are the values of the site to preserving the existing koala population and supporting recovering and expanding populations?

Principle 2. Avoid intensifying land use in koala habitat areas through appropriate landscape planning and site selection

Criteria 3. *Site selection takes into account koala habitat values.*

In addressing this criterion, the development application needs to show:

- How has the development footprint avoided habitat?
- What feasible alternatives were assessed as part of the process?

Principle 3. Encourage the proper conservation and management of areas of natural vegetation that provide habitat for koalas

Criteria 4. *Development avoids the direct loss of koala habitat within the site area and avoids fragmentation*

Criteria 5. *Koala habitat is excluded from the development footprint*

Principle 4. Minimise potential direct impacts to koalas through koala sensitive design

Criteria 6. *Development avoids direct impacts to koala habitat within the site area.*

In addressing this criterion, the development application needs to show:

- How will impacts to koala habitat be minimised so as to not fragment existing koala habitat, impact the ability of koalas to move across the landscape or impact the recovery and expansion of populations?

Criteria 7. *Where some loss of habitat cannot be avoided (and providing it is consistent with all other criteria set out here), development is designed in a way that retains higher value areas across the site and avoids fragmentation of habitat within the site area and more broadly within the region.*

For instance, this might mean prioritising the retention of koala trees that are greater than 250 mm DBH, or areas of koala habitat that are in better condition, show signs of koala tree recruitment, are better connected with habitat more broadly, or contain features that might be important for refuge.

Criteria 8. *Development is undertaken in a way that maintains the potential function of the koala habitat.*

For instance, if the koala habitat within the site area has been identified as an important linkage corridor, development should be undertaken in a way that enables the continued movement of koalas.

Principle 4. Implement best practice measures for the management of identified risks to koalas.

Criteria 9. *All relevant indirect impacts to koalas and koala habitat associated with the development are identified.*

Potential indirect impacts which may be relevant include (but are not limited to): dog attacks, vehicle strikes, drowning in pools, increased risk of fire, introduction or spread of disease, disturbance, and impediments to movement.

It is important when considering potential indirect impacts to look beyond the site area to any additional areas which are likely to be affected by the proposal to take all potential impacts into account.

Criteria 10. *Development uses best practice management measures to address the potential impacts considered likely to pose an increased risk to koalas or their habitat.*

The types of measures or controls used to address impacts will vary depending on the nature of the development, the relative importance of the site area to koalas, and the extent and magnitude of impacts.

The specific requirements may be guided by development control plans relevant to each council area. Examples of the types of measures that might be used to address the indirect impacts identified here are provided in Table 1 above.

Principle 5. Use compensatory measures only where they can be shown to better promote the aim of the SEPP

Criteria 11. *Compensatory measures are only used once it has been demonstrated that options to avoid, minimise and manage impacts to koala habitat have been exhausted.*

Criteria 12. *Where there is any direct loss of habitat or compromise in the potential function of a koala habitat area (and providing it is consistent with all other criteria outlined here), suitable compensatory measures are provided.*

Determining the suitability of any proposed compensatory measures should be guided by the overall aim of the SEPP.

Principle 6. Use adaptive management strategies to monitor, evaluate and deliver appropriate planning outcomes for koalas

Criteria 13. *Development application includes a monitoring, adaptive management and reporting component against the key outcomes.*

3.3 Template for Koala Assessment Reports

A standard example table of contents for Koala Assessment Reports is provided below. These reports need to include the following information to ensure a standard approach across NSW. These reports must accompany a development application to which the SEPP applies.

| Introduction | |
|---|--------------------------|
| Describe the nature of the proposed development. | <input type="checkbox"/> |
| Define how the SEPP applies to the proposed development. | <input type="checkbox"/> |
| Koala habitat values – addressing criteria 1 and 2 | |
| Describe the site area, including the general environment and condition, location and extent of the development area and any other areas that may be directly or indirectly impacted by the proposed development. | <input type="checkbox"/> |
| Provide details of koala survey as undertaken in accordance with Appendix C. This should include details of the results of the koala surveys, including how the site area meets the definition of core koala habitat and mapping that shows habitat areas and koala records within the site area and adjoining areas. | <input type="checkbox"/> |
| Describe the site context (including mapping showing habitat that might be associated with vegetation in the adjoining landscape and records within the vicinity of the site area) and provide an analysis of the koala habitat values (including how koalas might use the site area and the relative importance of the site area to a local koala population). | <input type="checkbox"/> |
| Measures taken to avoid impacts to koalas – addressing criteria 3, 4, 5, 6, 7 and 8 | |
| Describe the site selection process, including how koala habitat was taken into account and any avoidance outcomes achieved through this process. | <input type="checkbox"/> |
| Describe how the proposed development avoids or minimises direct impacts to koala habitat and habitat function within the site area. | <input type="checkbox"/> |
| Analysis of potential impacts – addressing criteria 9 | |
| Identify the residual direct impacts to koalas and koala habitat within the site area, including the nature and extent of impacts and the likely implications for the viability of a local koala population. | <input type="checkbox"/> |
| Identify the relevant potential indirect impacts to koalas and koala habitat within the site area and adjacent habitat areas, including the nature and extent of potential indirect impacts and the likely implications for the viability of a local koala population. | <input type="checkbox"/> |
| Plan to manage and protect koalas and their habitat – addressing criteria 10, 11, 12 and 13 | |
| Describe the management measures that will be implemented as part of proposed construction and operations to manage the direct and indirect impacts identified. These measures should be outcomes focussed and include performance targets. | <input type="checkbox"/> |
| Describe any compensatory measures that will be delivered, including an analysis of the suitability of these measures against criteria 9 and 10. | <input type="checkbox"/> |
| Outline a plan for monitoring, adaptive management and reporting against the key outcomes and performance targets. | <input type="checkbox"/> |
| 6. References | |
| Include a list of all references cited in the report. | <input type="checkbox"/> |

7. Appendices

Include any additional information or supplementary material pertinent to the DA proposal.



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Appendix A: Koala Tree Species List (as per Schedule 2 of the SEPP)

Central and Southern Tablelands koala management area

| Scientific name | Common name |
|---------------------------------|---------------------------|
| <i>Eucalyptus agglomerata</i> | Blue-leaved Stringybark |
| <i>Eucalyptus albens</i> | White Box |
| <i>Eucalyptus amplifolia</i> | Cabbage Gum |
| <i>Eucalyptus blakelyi</i> | Blakely's Red Gum |
| <i>Eucalyptus bosistoana</i> | Coast Grey Box |
| <i>Eucalyptus bridgesiana</i> | Apple Box |
| <i>Eucalyptus camaldulensis</i> | River Red Gum |
| <i>Eucalyptus conica</i> | Fuzzy Box |
| <i>Eucalyptus cypellocarpa</i> | Monkey Gum |
| <i>Eucalyptus dalrympleana</i> | Mountain Gum |
| <i>Eucalyptus dealbata</i> | Tumbledown Red Gum |
| <i>Eucalyptus dives</i> | Broad-leaved Peppermint |
| <i>Eucalyptus elata</i> | River Peppermint |
| <i>Eucalyptus eugenioides</i> | Narrow-leaved Stringybark |
| <i>Eucalyptus fibrosa</i> | Broad-leaved Red Ironbark |
| <i>Eucalyptus globoides</i> | White Stringybark |
| <i>Eucalyptus goniocalyx</i> | Bundy |

| | |
|---------------------------------|--------------------------|
| <i>Eucalyptus macrorhyncha</i> | Red Stringybark |
| <i>Eucalyptus maidenii</i> | Maiden's Blue Gum |
| <i>Eucalyptus mannifera</i> | Brittle Gum |
| <i>Eucalyptus melliodora</i> | Yellow Box |
| <i>Eucalyptus microcarpa</i> | Western Grey Box |
| <i>Eucalyptus nortonii</i> | Large-flowered Bundy |
| <i>Eucalyptus obliqua</i> | Messmate |
| <i>Eucalyptus oblonga</i> | Stringybark |
| <i>Eucalyptus paniculata</i> | Grey Ironbark |
| <i>Eucalyptus pauciflora</i> | White Sally, Snow Gum |
| <i>Eucalyptus piperita</i> | Sydney Peppermint |
| <i>Eucalyptus polyanthemus</i> | Red Box |
| <i>Eucalyptus punctata</i> | Grey Gum |
| <i>Eucalyptus quadrangulata</i> | White-topped Box |
| <i>Eucalyptus radiata</i> | Narrow leaved Peppermint |
| <i>Eucalyptus rossii</i> | Inland Scribbly Gum |
| <i>Eucalyptus rubida</i> | Candlebark |
| <i>Eucalyptus sclerophylla</i> | Hard-leaved Scribbly Gum |
| <i>Eucalyptus sideroxylon</i> | Mugga Ironbark |
| <i>Eucalyptus sieberi</i> | Silvertop Ash |

| | |
|--------------------------------|----------------|
| <i>Eucalyptus tereticornis</i> | Forest Red Gum |
| <i>Eucalyptus viminalis</i> | Ribbon Gum |

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Central Coast koala management area

| Scientific name | Common name |
|---------------------------------|-------------------------|
| <i>Allocasuarina littoralis</i> | Black She-oak |
| <i>Allocasuarina torulosa</i> | Forest Oak |
| <i>Angophora bakeri</i> | Narrow-leaved Apple |
| <i>Angophora costata</i> | Smooth-barked Apple |
| <i>Angophora floribunda</i> | Rough-barked Apple |
| <i>Casuarina glauca</i> | Swamp Oak |
| <i>Corymbia eximia</i> | Yellow Bloodwood |
| <i>Corymbia gummifera</i> | Red Bloodwood |
| <i>Corymbia maculata</i> | Spotted Gum |
| <i>Eucalyptus acmenoides</i> | White Mahogany |
| <i>Eucalyptus agglomerata</i> | Blue-leaved Stringybark |
| <i>Eucalyptus albens</i> | White Box |
| <i>Eucalyptus amplifolia</i> | Cabbage Gum |
| <i>Eucalyptus beyeriana</i> | Beyer's Ironbark |
| <i>Eucalyptus blakelyi</i> | Blakely's Red Gum |
| <i>Eucalyptus bosistoana</i> | Coast Grey Box |
| <i>Eucalyptus botryoides</i> | Bangalay |
| <i>Eucalyptus camaldulensis</i> | River Red Gum |
| <i>Eucalyptus camfieldii</i> | Camfield's Stringybark |
| <i>Eucalyptus canaliculata</i> | Large-fruited Grey Gum |
| <i>Eucalyptus capitellata</i> | Brown Stringybark |
| <i>Eucalyptus carnea</i> | Thick-leaved Mahogany |
| <i>Eucalyptus consideniana</i> | Yertchuk |

| | |
|----------------------------------|---------------------------|
| <i>Eucalyptus crebra</i> | Narrow-leaved Ironbark |
| <i>Eucalyptus cypellocarpa</i> | Monkey Gum |
| <i>Eucalyptus deanei</i> | Mountain Blue Gum |
| <i>Eucalyptus eugenioides</i> | Narrow-leaved Stringybark |
| <i>Eucalyptus fibrosa</i> | Broad-leaved Red Ironbark |
| <i>Eucalyptus glaucina</i> | Slaty Red Gum |
| <i>Eucalyptus globoides</i> | White Stringybark |
| <i>Eucalyptus grandis</i> | Flooded Gum |
| <i>Eucalyptus haemastoma</i> | Broad-leaved Scribbly Gum |
| <i>Eucalyptus imitans</i> | Eucalyptus imitans |
| <i>Eucalyptus largeana</i> | Craven Grey Box |
| <i>Eucalyptus longifolia</i> | Woollybutt |
| <i>Eucalyptus macrorhyncha</i> | Red Stringybark |
| <i>Eucalyptus melliodora</i> | Yellow Box |
| <i>Eucalyptus michaeliana</i> | Brittle Gum |
| <i>Eucalyptus microcorys</i> | Tallowwood |
| <i>Eucalyptus moluccana</i> | Grey Box |
| <i>Eucalyptus oblonga</i> | Stringybark |
| <i>Eucalyptus paniculata</i> | Grey Ironbark |
| <i>Eucalyptus parramattensis</i> | Parramatta Red Gum |
| <i>Eucalyptus pilularis</i> | Blackbutt |
| <i>Eucalyptus piperita</i> | Sydney Peppermint |
| <i>Eucalyptus propinqua</i> | Small-fruited Grey Gum |
| <i>Eucalyptus punctata</i> | Grey Gum |
| <i>Eucalyptus quadrangulata</i> | White-topped Box |

| | |
|--------------------------------|----------------------------|
| <i>Eucalyptus racemosa</i> | Narrow-leaved Scribbly Gum |
| <i>Eucalyptus resinifera</i> | Red Mahogany |
| <i>Eucalyptus robusta</i> | Swamp Mahogany |
| <i>Eucalyptus saligna</i> | Sydney Blue Gum |
| <i>Eucalyptus scias</i> | Large-fruited Red Mahogany |
| <i>Eucalyptus sclerophylla</i> | Hard-leaved Scribbly Gum |
| <i>Eucalyptus siderophloia</i> | Grey Ironbark |
| <i>Eucalyptus sideroxylon</i> | Mugga Ironbark |
| <i>Eucalyptus sieberi</i> | Silvertop Ash |
| <i>Eucalyptus signata</i> | Scribbly Gum |
| <i>Eucalyptus sparsifolia</i> | Narrow-leaved Stringybark |
| <i>Eucalyptus squamosa</i> | Scaly Bark |
| <i>Eucalyptus tereticornis</i> | Forest Red Gum |
| <i>Eucalyptus umbra</i> | Bastard White Mahogany |
| <i>Eucalyptus viminalis</i> | Ribbon Gum |
| <i>Melaleuca quinquenervia</i> | Broad-leaved Paperbark |
| <i>Syncarpia glomulifera</i> | Turpentine |

Darling Riverine Plains koala management area

| Scientific name | Common name |
|---------------------------------|------------------------|
| <i>Callitris glaucophylla</i> | White Cypress Pine |
| <i>Eucalyptus albens</i> | White Box |
| <i>Eucalyptus camaldulensis</i> | River Red Gum |
| <i>Eucalyptus chloroclada</i> | Dirty Gum |
| <i>Eucalyptus conica</i> | Fuzzy Box |
| <i>Eucalyptus coolabah</i> | Coolibah |
| <i>Eucalyptus crebra</i> | Narrow-leaved Ironbark |
| <i>Eucalyptus dealbata</i> | Tumbledown Red Gum |
| <i>Eucalyptus dwyeri</i> | Dwyer's Red Gum |
| <i>Eucalyptus largiflorens</i> | Black Box |
| <i>Eucalyptus melanophloia</i> | Silver-leaved Ironbark |
| <i>Eucalyptus melliodora</i> | Yellow Box |
| <i>Eucalyptus microcarpa</i> | Western Grey Box |
| <i>Eucalyptus pilligaensis</i> | Narrow-leaved Grey Box |
| <i>Eucalyptus populnea</i> | Bimble Box, Poplar Box |
| <i>Eucalyptus sideroxylon</i> | Mugga Ironbark |

Far West koala management area

| Scientific name | Common name |
|---------------------------------|------------------------|
| <i>Angophora floribunda</i> | Rough-barked Apple |
| <i>Callitris glaucophylla</i> | White Cypress Pine |
| <i>Casuarina cristata</i> | Belah |
| <i>Eucalyptus albens</i> | White Box |
| <i>Eucalyptus blakelyi</i> | Blakely's Red Gum |
| <i>Eucalyptus camaldulensis</i> | River Red Gum |
| <i>Eucalyptus chloroclada</i> | Dirty Gum |
| <i>Eucalyptus coolabah</i> | Coolibah |
| <i>Eucalyptus crebra</i> | Narrow-leaved Ironbark |
| <i>Eucalyptus dealbata</i> | Tumbledown Red Gum |
| <i>Eucalyptus intertexta</i> | Gum Coolibah |
| <i>Eucalyptus largiflorens</i> | Black Box |
| <i>Eucalyptus melanophloia</i> | Silver-leaved Ironbark |
| <i>Eucalyptus melliodora</i> | Yellow Box |
| <i>Eucalyptus microcarpa</i> | Western Grey Box |
| <i>Eucalyptus moluccana</i> | Grey Box |
| <i>Eucalyptus pilligaensis</i> | Narrow-leaved Grey Box |
| <i>Eucalyptus populnea</i> | Bimble Box |
| <i>Eucalyptus sideroxylon</i> | Mugga Ironbark |
| <i>Geijera parviflora</i> | Wilga |

North Coast koala management area

| Scientific name | Common name |
|--------------------------------|---------------------------|
| <i>Allocasuarina torulosa</i> | Forest Oak |
| <i>Angophora floribunda</i> | Rough-barked Apple |
| <i>Corymbia gummifera</i> | Red Bloodwood |
| <i>Corymbia henryi</i> | Large-leaved Spotted Gum |
| <i>Corymbia intermedia</i> | Pink Bloodwood |
| <i>Corymbia maculata</i> | Spotted Gum |
| <i>Eucalyptus acmenoides</i> | White Mahogany |
| <i>Eucalyptus amplifolia</i> | Cabbage Gum |
| <i>Eucalyptus bancroftii</i> | Orange Gum |
| <i>Eucalyptus biturbinata</i> | Grey Gum |
| <i>Eucalyptus campanulata</i> | New England Blackbutt |
| <i>Eucalyptus canaliculata</i> | Large-fruited Grey Gum |
| <i>Eucalyptus carnea</i> | Thick-leaved Mahogany |
| <i>Eucalyptus crebra</i> | Narrow-leaved Ironbark |
| <i>Eucalyptus eugenoides</i> | Narrow-leaved stringybark |
| <i>Eucalyptus fibrosa</i> | Broad-leaved Red Ironbark |
| <i>Eucalyptus glaucina</i> | Slaty Red Gum |
| <i>Eucalyptus globoidea</i> | White Stringybark |
| <i>Eucalyptus grandis</i> | Flooded Gum |
| <i>Eucalyptus laevopinea</i> | Silver-top Stringybark |
| <i>Eucalyptus largeana</i> | Craven Grey Box |
| <i>Eucalyptus microcorys</i> | Tallowwood |

| | |
|---|---|
| <i>Eucalyptus moluccana</i> | Grey Box |
| <i>Eucalyptus nobilis</i> | Forest Ribbon Gum |
| <i>Eucalyptus pilularis</i> | Blackbutt |
| <i>Eucalyptus placita</i> | Grey Ironbark |
| <i>Eucalyptus planchoniana</i> | Bastard Tallowwood |
| <i>Eucalyptus propinqua</i> | Small-fruited Grey Gum |
| <i>Eucalyptus psammitica</i> | Bastard White Mahogany |
| <i>Eucalyptus punctata</i> | Grey Gum |
| <i>Eucalyptus resinifera</i> | Red Mahogany |
| <i>Eucalyptus robusta</i> | Swamp Mahogany |
| <i>Eucalyptus rummeryi</i> | Steel Box |
| <i>Eucalyptus saligna</i> | Sydney Blue Gum |
| <i>Eucalyptus scias</i> | Large-fruited Red Mahogany |
| <i>Eucalyptus seeana</i> | Narrow-leaved Red Gum |
| <i>Eucalyptus siderophloia</i> | Grey Ironbark |
| <i>Eucalyptus signata/Eucalyptus racemosa</i> | Scribbly Gum/Narrow-leaved Scribbly Gum |
| <i>Eucalyptus tereticornis</i> | Forest Red Gum |
| <i>Eucalyptus tindaliae</i> | Stringybark |
| <i>Eucalyptus umbra</i> | Bastard White Mahogany |
| <i>Melaleuca quinquenervia</i> | Broad-leaved Paperbark |

Northwest Slopes koala management area

| Scientific name | Common name |
|---------------------------------|---------------------------|
| <i>Angophora floribunda</i> | Rough-barked Apple |
| <i>Callitris glaucophylla</i> | White Cypress Pine |
| <i>Casuarina cristata</i> | Belah |
| <i>Eucalyptus albens</i> | White Box |
| <i>Eucalyptus blakelyi</i> | Blakely's Red Gum |
| <i>Eucalyptus bridgesiana</i> | Apple Box |
| <i>Eucalyptus caleyi</i> | Drooping Ironbark |
| <i>Eucalyptus caliginosa</i> | Broad-leaved Stringybark |
| <i>Eucalyptus camaldulensis</i> | River Red Gum |
| <i>Eucalyptus canaliculata</i> | Large-fruited Grey Gum |
| <i>Eucalyptus chloroclada</i> | Dirty Gum |
| <i>Eucalyptus conica</i> | Fuzzy Box |
| <i>Eucalyptus coolabah</i> | Coolibah |
| <i>Eucalyptus crebra</i> | Narrow-leaved Ironbark |
| <i>Eucalyptus dalrympleana</i> | Mountain Gum |
| <i>Eucalyptus dealbata</i> | Tumbledown Red Gum |
| <i>Eucalyptus dwyeri</i> | Dwyer's Red Gum |
| <i>Eucalyptus exserta</i> | Peppermint |
| <i>Eucalyptus fibrosa</i> | Broad-leaved Red Ironbark |
| <i>Eucalyptus goniocalyx</i> | Bundy |
| <i>Eucalyptus laevopinea</i> | Silver-top Stringybark |
| <i>Eucalyptus largiflorens</i> | Black Box |

| | |
|----------------------------------|------------------------|
| <i>Eucalyptus macrorhyncha</i> | Red Stringybark |
| <i>Eucalyptus mannifera</i> | Brittle Gum |
| <i>Eucalyptus melanophloia</i> | Silver-leaved Ironbark |
| <i>Eucalyptus melliodora</i> | Yellow Box |
| <i>Eucalyptus microcarpa</i> | Western Grey Box |
| <i>Eucalyptus moluccana</i> | Grey Box |
| <i>Eucalyptus nobilis</i> | Forest Ribbon Gum |
| <i>Eucalyptus parramattensis</i> | Parramatta Red Gum |
| <i>Eucalyptus pauciflora</i> | White Sally, Snow Gum |
| <i>Eucalyptus pilligaensis</i> | Narrow-leaved Grey Box |
| <i>Eucalyptus polyanthemus</i> | Red Box |
| <i>Eucalyptus populnea</i> | Bimble Box/Poplar Box |
| <i>Eucalyptus prava</i> | Orange Gum |
| <i>Eucalyptus punctata</i> | Grey Gum |
| <i>Eucalyptus quadrangulata</i> | White-topped Box |
| <i>Eucalyptus sideroxylon</i> | Mugga Ironbark |
| <i>Eucalyptus viminalis</i> | Ribbon Gum |

Northern Tablelands koala management area

| Scientific name | Common name |
|---------------------------------|---------------------------|
| <i>Allocasuarina littoralis</i> | Black She-oak |
| <i>Angophora floribunda</i> | Rough-barked Apple |
| <i>Callitris glaucophylla</i> | White Cypress Pine |
| <i>Eucalyptus acaciiformis</i> | Wattle-leaved Peppermint |
| <i>Eucalyptus albens</i> | White Box |
| <i>Eucalyptus amplifolia</i> | Cabbage Gum |
| <i>Eucalyptus biturbinata</i> | Grey Gum |
| <i>Eucalyptus blakelyi</i> | Blakely's Red Gum |
| <i>Eucalyptus bridgesiana</i> | Apple Box |
| <i>Eucalyptus brunnea</i> | Mountain Blue Gum |
| <i>Eucalyptus caleyi</i> | Drooping Ironbark |
| <i>Eucalyptus caliginosa</i> | Broad-leaved Stringybark |
| <i>Eucalyptus camaldulensis</i> | River Red Gum |
| <i>Eucalyptus campanulata</i> | New England Blackbutt |
| <i>Eucalyptus crebra</i> | Narrow-leaved Ironbark |
| <i>Eucalyptus dalrympleana</i> | Mountain Gum |
| <i>Eucalyptus dealbata</i> | Tumbledown Red Gum |
| <i>Eucalyptus eugenioides</i> | Narrow-leaved Stringybark |
| <i>Eucalyptus laevopinea</i> | Silver-top Stringybark |
| <i>Eucalyptus macrorhyncha</i> | Red Stringybark |
| <i>Eucalyptus melanophloia</i> | Silver-leaved Ironbark |
| <i>Eucalyptus melliodora</i> | Yellow Box |
| <i>Eucalyptus michaeliana</i> | Brittle Gum |

| | |
|--------------------------------|--------------------------------|
| <i>Eucalyptus microcorys</i> | Tallowwood |
| <i>Eucalyptus moluccana</i> | Grey Box |
| <i>Eucalyptus nicholii</i> | Narrow-leaved Black Peppermint |
| <i>Eucalyptus nobilis</i> | Forest Ribbon Gum |
| <i>Eucalyptus nova-anglica</i> | New England Peppermint |
| <i>Eucalyptus obliqua</i> | Messmate |
| <i>Eucalyptus pauciflora</i> | White Sally, Snow Gum |
| <i>Eucalyptus prava</i> | Orange Gum |
| <i>Eucalyptus radiata</i> | Narrow leaved Peppermint |
| <i>Eucalyptus saligna</i> | Sydney Blue Gum |
| <i>Eucalyptus sideroxylon</i> | Mugga Ironbark |
| <i>Eucalyptus stellulata</i> | Black Sally |
| <i>Eucalyptus subvelutina</i> | Broad-leaved Apple |
| <i>Eucalyptus tereticornis</i> | Forest Red Gum |
| <i>Eucalyptus viminalis</i> | Ribbon Gum |
| <i>Eucalyptus williamsiana</i> | Eucalyptus williamsiana |
| <i>Eucalyptus youmanii</i> | Youman's Stringybark |

South Coast koala management area

| Scientific name | Common name |
|---------------------------------|---------------------------|
| <i>Allocasuarina littoralis</i> | Black She-oak |
| <i>Angophora floribunda</i> | Rough-barked Apple |
| <i>Corymbia gummifera</i> | Red Bloodwood |
| <i>Corymbia maculata</i> | Spotted Gum |
| <i>Eucalyptus agglomerata</i> | Blue-leaved Stringybark |
| <i>Eucalyptus baueriana</i> | Blue Box |
| <i>Eucalyptus bosistoana</i> | Coast Grey Box |
| <i>Eucalyptus consideniana</i> | Yertchuk |
| <i>Eucalyptus cypellocarpa</i> | Monkey Gum |
| <i>Eucalyptus elata</i> | River Peppermint |
| <i>Eucalyptus eugenioides</i> | Narrow-leaved Stringybark |
| <i>Eucalyptus fastigata</i> | Brown Barrel |
| <i>Eucalyptus globoidea</i> | White Stringybark |
| <i>Eucalyptus longifolia</i> | Woollybutt |
| <i>Eucalyptus maidenii</i> | Maiden's Blue Gum |
| <i>Eucalyptus muelleriana</i> | Yellow Stringybark |
| <i>Eucalyptus obliqua</i> | Messmate |
| <i>Eucalyptus paniculata</i> | Grey Ironbark |
| <i>Eucalyptus pilularis</i> | Blackbutt |
| <i>Eucalyptus piperita</i> | Sydney Peppermint |
| <i>Eucalyptus punctata</i> | Grey Gum |
| <i>Eucalyptus saligna</i> | Sydney Blue Gum |
| <i>Eucalyptus sclerophylla</i> | Hard-leaved Scribbly Gum |

Eucalyptus sieberi

Eucalyptus tereticornis

Eucalyptus tricarpa

Eucalyptus viminalis

Silvertop Ash

Forest Red Gum

Mugga (Red) Ironbark

Ribbon Gum

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Appendix B: Detailed Criteria for Preparing Koala Plans of Management

This appendix:

- Outlines the steps for developing a koala plan of management (KPoM).
- Provides guidance about the methodology for identifying and mapping koala habitat across the plan area.
- Provides a standard structure for KPoMs that must be followed to ensure plans are robust and consistent across NSW.

Steps for Developing KPoMs

The following steps provide a suggested process for initiating and developing a KPoM. They don't necessarily need to be undertaken in the same order but doing so will help efficiently reach the end point of a finalised KPoM.

The steps are:

1. Scope and project plan:
 - a. Determining of the need for a KPoM
 - b. Definition of a proposed plan area and available data/mapping to inform identification of core koala habitat
 - c. Identification of key issues and risks
 - d. Project planning including tasks, resourcing and timeframes
2. Discuss with DPIE and the Environment, Energy and Science Group of the DPIE about the proposed KPoM. These discussions are encouraged to occur as early as possible and continue throughout development of the plan. Formal consultation during development of the plan with the Coordinator General of the Environment, Energy and Science Group of the Department of Planning, Industry and Environment is a requirement of the SEPP (Clause 12). In addition, councils are encouraged to consult with Local Land Services throughout the development of the KPoM.
3. Background studies and surveys into the habitat and presence of koalas within the plan area. This is discussed further below.
4. Establish a koala working group to engage with key stakeholders including the community, researchers and other organisations. This is a critical part of the process and provides the opportunity to gather further information about koalas, and test and develop management approaches. Early engagement with landholders and land managers is encouraged since they may be able to advise on the presence of koalas and/or koala habitat on their land.
5. Draft the plan by building on the technical background information and input from key stakeholders. A standard structure for KPoMs is provided below.
6. Consult with DPIE regarding the draft plan and its consistency with the SEPP so that any major legal or policy issues can be resolved before public exhibition.
7. Public consultation on the draft plan must be undertaken to provide an opportunity to gain community comments and input. Minimum public exhibition period of 28 days. Submissions report detailing results of exhibition to be submitted to the Secretary with the KPoM. Any comments should be collated and considered when drafting the final plan.
8. Finalise the plan and seek approval by the Secretary of DPIE, including supplying GIS data of any core koala habitat identified in the plan, and any other documents relevant to the plan including a report on any surveys.
9. Implementation of plan once it is in place. This should include monitoring and review.

Identifying and Mapping Koala Habitat

Identifying and mapping koala habitat are the critical foundations of KPOMs (Step 3 in the above process). Thorough scientific survey and research and use of existing mapping products and current imagery will allow the most reliable identification of koala habitat and provide a strong base for management and planning decisions.

As discussed in Part 2 of this Guideline, the definition of core koala habitat under the SEPP is limiting at a landscape level. It is therefore appropriate for KPOMs to identify habitat of importance or potential importance to koalas in terms of a number of factors not limited to those used to define “core koala habitat”. These should include:

- the presence of preferred trees (the SEPP’s Site Investigation Area for Koala Plans of Management Map can be used).
- the presence of suitable habitat.
- past and present koala records.
- dispersal or seasonal movement requirements.
- corridors important for maintaining connectivity.
- drought or fire refuges.

The Koala Habitat Information Base can be consulted to provide information on koala habitat suitability across a region, the likelihood of koala tree presence, the likelihood of koala occurrence in an area, information on areas of regional koala significance and for historical records of koala sightings in NSW. It can assist in identifying and mapping koala habitat in a KPOM.

What mapping is required?

A KPOM must include a map (or series of maps) which identifies koala habitat and (where possible) categorises that habitat, and identifies corridors and other areas of importance such as drought refuge areas. High quality mapping will facilitate the analysis of koala habitat categories against other factors, such as land tenure and land use zone. This can greatly contribute to the identification of potential areas of conflicting land use (e.g. koala habitat occurring on land currently zoned or proposed to be zoned to permit development), as well as the overall assessment of conservation status of koala habitat within a given LGA.

How should mapping be undertaken?

The methods used for mapping must be fit for purpose and tailored to the region where the plan is being prepared. This is critical so that the approach to mapping accommodates regional variation in koala populations and habitat throughout NSW.

However, it is necessary that a KPOM specify a range of habitat types based on tree species identified in the SEPP as well as the findings of field surveys and record analysis. In order to identify koala habitat for the purpose of a KPOM, the following general procedures should be followed:

1. Production of a vegetation map identifying plant community types (PCTs) at a suitable scale and accuracy. The vegetation map should include both floristic and structural characteristics.
2. Analysis of existing records providing both recent and historical locations of koalas.
3. Field survey to determine koala presence and activity and to identify which tree species and associated plant community types koalas utilise in the study area. This may include tree species additional to those listed on Schedule 2 of the SEPP (replicated in Appendix A of this Guideline).

Mapping can then be produced which identifies categories of koala habitat and identifies corridors and other areas of importance such as drought refuge areas.

Principles to guide the identification of koala habitat

There is no one size fits all approach to the definition of koala habitat at a landscape scale. As for the mapping method, the categories should be tailored to the KPOM region.

Guiding principles

- Given the unprecedented 2019-20 fire season and the impact to koala populations and their habitat across NSW, a precautionary approach should be taken in identifying koala habitat as:
 - post fire, occupied areas may not be re-occupied until the habitat recovers and provides suitable structure and browse, regardless of survey methods.
 - in terms of historical records, the lack of NSW Bionet records does not mean koalas have not been there, just not recorded.
- The Koala Habitat Information Base (<https://datasets.seed.nsw.gov.au/dataset/koala-habitat-information-base>) should be used to identify which areas are likely to have suitable koala habitat, koala use trees and which areas are likely occupied by koalas. The information base can also guide where to focus local surveys efforts.
- Koala habitat mapping should be informed by local surveys and fine scale mapping to identify vegetation communities that contain trees that koalas are known to use in that region (see Appendix C).
- Survey sites and effort should be informed by the variability of vegetation communities in the local government area and across all land tenures.
- Survey design must be based on scientifically rigorous methods suitable to the study area
- Categories of mapped koala habitat should use classes appropriate to the region that is informed by recent studies.
- Historical and recent distribution of koalas in the local government area should be identified through an analysis of NSW Bionet records and local field survey of areas that have had low to no survey effort in the past.
- Identify and map habitat that connects areas that are occupied by koalas.
- Identify and map suitable habitat that is currently unoccupied (areas for population expansion or recolonisation).
- Identify and map areas of koala habitat important for providing refuge in a changing climate (i.e. drought and bushfire).
- Identify what is known about the generational persistence of the local koala populations through an analysis of records to determine population trends and persistence over time. The assessment of historical koala records can provide an indication of where koalas are distributed throughout the landscape, where koala populations have persisted over time, and where koalas are no longer being recorded.

Core koala habitat

The final element of the mapping process is to identify areas of core koala habitat (as defined by the SEPP) based on evidence of koala presence or historical records and the presence of highly suitable koala habitat. Any areas of core koala habitat in a KPOM must occur within the SEPP's Site Investigation Area for Koala Plans of Management Map.

Any surveys done at the time of preparing the KPOM must be undertaken using the methods outlined in Appendix C of this Guideline.

Identifying requirements for planning proposals, development applications and activities affecting koala habitat

The KPOM must outline the requirements for:

1. planning proposals in core koala habitat and other koala habitat important for maintaining connectivity and function.
2. development assessment for any development application on land to which the plan applies. For development applications in mapped core koala habitat, the Biodiversity Offsets Scheme will automatically apply. For developments in other mapped koala habitat these requirements should consider the criteria in section 3.2 of this Guideline.

Standard Structure for KPoMs

A standard structure for KPoMs is provided below (Table 2). At a minimum, KPoMs need to include the following information to ensure a standard approach across NSW. Other information specific to the plan area can also be included as required.

Table 2: Standard structure for KPoMs

| Standard Structure for KPoMs | |
|--|---|
| Section 1 | |
| Purpose | <p>Defines the purpose of the KPoM.</p> <p>In particular this must include meeting the aims of the SEPP which are to “encourage the conservation and management of areas of natural vegetation that provide habitat for koalas to support a permanent free-living population over their present range and reverse the current trend of koala population decline”.</p> <p>The secondary purpose of a KPoM should be to address the six planning principles outlined in this Guideline.</p> |
| Objectives | <p>Defines the objectives of the KPoM.</p> <p>In the interests of consistency, the following objectives are recommended:</p> <ul style="list-style-type: none"> • Manage the long-term sustainability and recovery of koalas and their habitat. • Identify and list the preferred koala food tree species likely to be found in the plan area and map koala habitat. • Ensure that there is no net loss of koala habitat and (where appropriate) create, manage and/or restore koala habitat linkages to allow for safe koala movement across the landscape. • Minimise and manage threats affecting koalas and their habitat. • Provide consistent assessment criteria for the processing of development applications, including guidelines for koala habitat assessment and food tree and koala habitat retention. |
| Legislative context | <p>Describes the main legislation and planning instruments which are relevant to the operation of the plan and which relate to the management and conservation of koalas and their habitats.</p> <p>Should include a description of the SEPP and how it applies within the planning system.</p> |
| Who is affected by the plan | Clearly describes who is affected by the plan. |
| What is the status of koalas in the plan area | Summarises the status of koalas in the plan area. Detailed technical information sitting behind this summary can be provided as appendices. |

Standard Structure for KPoMs

| | |
|--|--|
| What are the threats to koalas in the plan area | Identifies and describes the threatening processes affecting koalas and koala habitat within the plan area. For example, habitat clearing, fragmentation and degradation, feral predators, roads and traffic, disease and natural disasters. |
| Section 2 – General provisions | |
| Land to which the plan applies | Clearly describes the land to which the plan applies. |
| Land to which the plan does not apply | Clearly describes the land to which the plan does not apply. |
| Koala habitat mapping | Summarises the koala habitat mapping undertaken as part of developing the plan. Clearly describes that areas mapped as core koala habitat have been mapped consistent with the definition in the SEPP and includes maps of other habitat categories. Detailed technical information sitting behind this summary can be provided as appendices. |
| Relationship to other koala plans of management | Describes the relationship of the plan to other koala plans of management that may be in place. |
| Duration of the plan | Defines the duration of the plan. Must include provisions for review as appropriate. |

Section 3 – Management and monitoring activities

Standard Structure for KPoMs

Management / monitoring activities and actions

Provides a non-regulatory framework for management activities that complement the development assessment framework presented in Section 4 of the Plan. These management activities help:

- minimise threats to koalas and their habitat that are not related to development activity.
- increase the amount of koala habitat in the koala planning area.
- maintain and, where possible, improve the quality of koala habitat in the plan area.
- ensure effective implementation and monitoring of the Plan.
- community and landholders to manage and increase koala habitat corridors and habitat.

Koala management in the plan area should not be limited to forested areas but should extend over areas of fragmented habitat which support a koala population and identified links between koala habitats.

Specific actions should be defined in table format across the following management activities:

- Implementation and monitoring
- Regulatory processes
- Restoration and management
- Communication and education
- Road and traffic management
- Dog management
- Koala health and welfare
- Bushfire management
- Funding
- Research

For each specific action, the following information should be provided:

- Clear description of the action
- Priority (high, medium, low)
- Target start date
- Indicative duration of the action
- Indicative budget
- Funding source

Section 4 – Development assessment framework**When is the development assessment framework triggered?**

Defines when the development assessment framework is triggered. This must be for any areas identified as core koala habitat in the KPoM and is recommended for other koala habitat important for maintaining habitat connectivity and function.

Assessment pathways

Defines the assessment pathways that are relevant to the development application. These may be different in different council areas. For development applications in mapped core koala habitat, the Biodiversity Offsets Scheme will automatically apply. Councils should also consider identifying assessment pathways for other categories of koala habitat to help meet the objectives of the KPoM.

| Standard Structure for KPoMs | |
|---|--|
| Koala Habitat development applications | Describes the information that needs to be included with development applications. |
| Development design measures for the protection of koalas | <p>Describes the measures that can be put in place during the design of developments to protect koalas. Must include descriptions of measures to:</p> <ul style="list-style-type: none"> • protect koalas from the impacts of development. • avoid direct impacts to koala habitat. • mitigate and manage potential indirect impacts to koala habitat. • offset any unavoidable, residual impacts. <p>These measures should also be consistent with the best practice koala planning guideline being developed under the NSW Koala Strategy.</p> |
| Assessment criteria | Defines the criteria that council will consider in assessment development applications. This could take into consideration the criteria in 3.2 of this Guideline. |
| Section 5– Planning proposals that affect mapped koala habitat | |
| Planning proposal in mapped koala habitat | Defines requirements for planning proposals in core koala habitat and other koala habitat important for maintaining connectivity and function consistent with Ministerial Direction 2.6. |
| Other | |
| Glossary | |
| Technical appendices | Technical appendices should be included as appropriate. For example, the detailed methodology and results of the koala habitat mapping. |
| Identification of authors | The plan should list the authors of the plan as well as any field personnel that worked on the plan. The qualifications of these people should be stated in the document. |

Appendix C: Survey Methods for Core Koala Habitat

The following survey methods must be applied:

- in the preparation of a Koala Plan of Management for a part of, or whole of a local government area.
- in the preparation of a development application where the landowner/proponent chooses not to use the “Koala Development Application Map”.
- if there is no approved koala plan of management for the land where an individual chooses to conduct both a flora and fauna survey to determine whether their site contains core koala habitat.

The flora and fauna survey must be conducted by a suitably qualified person (consistent with the definition of a suitably qualified person in the SEPP).

For the above instances, a flora and fauna survey must be undertaken in accordance with the below procedure to determine if the area meets the following definition of core koala habitat in the SEPP.

| Habitat type | Definition |
|--------------------|---|
| Core koala habitat | (a) an area of land where koalas are present, or |
| | (b) an area of land— |
| | (i) which has been assessed by a suitably qualified and experienced person in accordance with the Guideline as being highly suitable koala habitat, |
| | and |
| | (ii) where koalas have been recorded as being present in the previous 18 years |

Notes about the definition:

1. “An area of land” includes both a development footprint and the broader area of land on which the development is proposed (i.e. the subject lot). The controls within the SEPP apply to both direct and indirect impacts and all habitat on the site area therefore needs to be considered even if no vegetation is to be cleared.

Surveys Must be Carried Out by a Suitably Qualified Person

The surveys must be carried out by a suitably qualified person. This is taken to mean a person with a minimum undergraduate qualification in natural sciences, ecology, environmental management, forestry or similar from a university and with a minimum 3 years’ experience in environmental assessment, including field identification of plant and animal species and habitat. This includes having as a minimum the following experience in conducting koala surveys:

- Greater than 10 surveys
- Experience in using the koala presence survey methods identified below
- Can accurately identify preferred koala use trees
- Can distinguish between koala faecal pellets and those from other species that may present similar characteristics

The person’s skills in koala survey should be demonstrable by relevant qualifications and the following:

- a history of experience in koala habitat / population assessments and associated survey methods, and/or
- a resume giving details of koala survey projects conducted over the previous 10 years, including employers' names and periods of employment (where relevant).

The experience and qualifications of the surveyor must be documented in the koala assessment report.

PART A

Koala presence

Koala presence must be determined through surveys of the site area.

The survey method should be selected based on which is most appropriate for the site and the conditions at the time of survey. The surveyors should refer to detailed koala survey guidelines where available to determine the appropriate survey method and the scale of the survey.

For all sites, surveys must include:

1. Searches for scats following (Phillips and Callaghan 2011) the Scat Assessment Technique (SAT) at a maximum grid spacing of 250 m.

Further information on using this method:

- Survey must not be undertaken within three days of heavy rainfall.

OR

2. Use of detection dogs where:

- the underlying spatial design considerations of the (Phillips and Callaghan 2011) SAT approach are adhered to.
- search times are standardised (min 20 minutes / site).

Further information on using this method:

- Use of conservation detection dogs is preferred on sites with deep leaf litter or very dense understory vegetation.
- Conservation detection dogs should not be used in extreme weather or where feral predator baiting is being or has been undertaken.
- Welfare of the Conservation detection dog must be considered and monitored at all stages.
- Conservation detection dogs and their handlers must meet minimum standards of training and experience and be assessed and accredited as a team. Assessment must include demonstrated competency in:
 - reliably commanding and handling the dog.
 - reliably demonstrating koala odour recognition and response in accordance with nominated and appropriate indication type (e.g. passive, freeze, dig/scratch, etc.).
 - reliably demonstrating non-target disinterest.
 - reliably demonstrating behaviour that does not harm koalas.
 - selecting and applying a search methodology.
- The handler must have the relevant approvals and permits.
- Conservation detection dogs and their handler must have previous field survey experience in koala detection.
- Accreditation must be provided by an independent party and must be documented.
- The use of Conservation Detection Dogs should be consistent with the DPIE EES Detection Dog Standard Operating Procedures.

and one of the following survey techniques:

1. Spotlighting following Department of Sustainability, Environment, Water, Population and Communities (DSEWPaC), 2011, *Survey Guidelines for Australia's Threatened Mammals*, comprising:
 - At least 2 walking transects of 200 metres per 5 hectares, spaced a minimum of 100m apart, in most likely koala habitat on site.
 - At least one transect must be placed in each PCT known to provide habitat for koalas, even if the PCT is less than 100m wide.
 - The survey being undertaken at a walking speed of approximately 10m/ per min
 - Searches undertaken over 2 consecutive nights.

Further information on using this method:

- Spotlighting can be especially suitable for detecting koalas that occur at low densities.
 - Spotlighting should not be used if the site supports dense vegetation (e.g. wet sclerophyll) or in steep terrain (e.g. >30 slope).
 - Spotlighting must not be undertaken during windy or wet conditions.
2. Call playback at 2 locations on separate nights per site (only between September and November).
 - Calls should be played at least 3 times followed by 5 minutes of listening, at a minimum of two locations.
 - Locations should be separated by 800m to 1km intervals on larger sites or min of 500m on smaller sites.
 - Locations should be selected to minimise background noise (i.e. away from roads).

Further information on using the method

- Call playback is not suitable for small sites less than 50 ha. Use of the technique on small sites increases the risk of false positives (i.e. koalas calling from locations beyond the site boundary).
 - Given the technique relies on male response it must only be used during peak breeding season (September to November).
 - Survey must not be undertaken on wet or windy nights.
3. Passive acoustic recording (as per Law et al. 2019), placed at intervals of a minimum of 500m and maximum of 1000m, in a grid pattern, across all suitable habitat on the site (only between September and November).
 - For sites 100ha or less recorders must remain in place for at least 7 nights without rain.
 - For sites with greater than 100ha recorders must remain in place for 14 nights without rain.
 - Scanning recordings for koala calls must be undertaken by a recognised bioacoustics expert or scanned manually by an appropriately experienced person.

Further information on using this method:

- Passive acoustic recording is not suitable for small sites less than 50ha. Use of the technique on small sites increases the risk of false positives (i.e. koalas calling from locations beyond the site boundary).
- Given the technique relies on male response it must only be used during peak breeding season (September to November).
- Must not be undertaken on wet or windy nights.

Where koalas or evidence of their presence (for example a koala scat) are recorded through surveys and the area is captured by the Site Investigation Area Map for Koala Plans of Management, the habitat is core koala habitat.

Results of investigations, site surveys and justification of survey methods and conclusions must be fully detailed in the survey report. Areas identified as core koala habitat must be clearly defined and mapped.

If the fauna survey shows that there isn't evidence of koala presence, then a survey must be undertaken to determine if the site has highly suitable habitat and records of koala presence (see Part B below).

PART B

i) Presence of highly suitable koala habitat

The native vegetation of the site area must be mapped into Plant Community Types (PCTs) based on a full floristic survey following Sivertsen, 2009, *Native Vegetation Interim Type Standard*.

Each PCT then must be sampled individually for the presence of koala use trees listed for the relevant Koala Management Area (KMA) in Schedule 2 of the SEPP (see Appendix A). A list of which LGAs occurs in each KMA is provided in Schedule 1 of the SEPP.

A suitable sampling method must be used to enable the tree species composition of each PCT (on average) to be calculated. A number of methods can be used dependent on size of the site area, tree density and uniformity of vegetation. These are:

1. Quadrats can be selected within each PCT either randomly or along a selected transect. Quadrats need to be of sufficient size to enable a minimum of at least 20 trees to be counted (at least 20 x 20 metres) and of sufficient number to allow a robust statistical determination of the percentage of tree species present in the lower, mid and upper stratum. The number and size of quadrats chosen will depend on the size of the site and the vegetation present and must be justified in the koala assessment report.
2. Transects can be randomly selected through each vegetation unit, identifying and counting all trees within a selected distance either side of the transect line (usually 20 either side). Transects need to be of sufficient length to sample enough trees to allow a statistical determination of the percentage of tree species present, with a minimum of 100 trees if present. The number and length of transects chosen will depend on the size of the site area and the vegetation present and must be justified in the koala assessment report.

Results of the sampling within each PCT must be shown separately and not summed for the overall site. Where 15% or greater of the total number of trees within any PCT are the regionally relevant species of those listed in Schedule 2 (see Appendix A), the site meets the definition of highly suitable koala habitat.

If highly suitable koala habitat has been established (via the above survey), the presence or past records of koalas must also be established.

Notes about the vegetation survey:

- A "tree" is taken to be a plant with a diameter at breast height over bark (DBHOB) of 10 cm or greater.
- Appendix A of this Guideline provides a list of the tree species as per Schedule 2 of the SEPP.
- Only the trees listed for the relevant region must be surveyed for.
- The calculation of the percentage of tree species must be completed within each vegetation community present on the site area and not averaged or totalled across the site. A result of 15% or greater in any individual vegetation community meets the definition of highly suitable koala habitat.

ii) Koala records

In addition to site surveys, there must also be a consideration of existing records spanning the previous 18 years (3 koala generations). The site area is considered to contain habitat that meets the definition of core koala habitat, provided the site contains highly suitable koala habitat (identified via the above survey) and where a record or records exist within the last 18 years, within the following maximum distances from the site:

- 2.5 kilometres of the site (for North Coast, Central Coast, Central Southern Tablelands, South Coast KMAs)
- 5 kilometres of the site (for Darling Riverine Plains, Far West, North West Slopes, Riverina, Northern Tablelands KMAs)

These distances reflect the estimated median home ranges of koalas within coastal and inland locations. In NSW, home ranges can vary greatly; some ranges have been recorded as low as 1-1.5 ha (AMBS, 2012), while others over 100 ha (McAlpine et al., 2006). Koalas studied in south-east Queensland moved on average 3.5km (and up to 10.6km) in their first breeding season (Dique et al., 2003), and male koalas translocated to sites across Western Victoria travelled up to 120km (as the crow flies) from where they were released over a six-month period (McIlwee, 2003).

Records within these maximum distances should only be considered after a careful examination of the broader landscape. That is, within areas of contiguous habitat or between areas of habitat with connectivity. For example, a record from 2.5km from the subject site should not be used if natural or artificial landscape features would prevent koalas from the area with the record ever moving to the site (e.g. due to large rivers or built up areas). The suitably qualified and experienced person should consider this carefully and provide evidence for record inclusion (e.g. local studies, surveys, landscape observations, peer reviewed academic literature).

A description of the record (Bionet, SightingKey, or catalogNumber, source, date, accuracy, associated observations) must be provided in the koala assessment report.

Note that Schedule 1 of the SEPP identifies which KMA is applicable to your local government area.

Where core koala habitat is identified, the assessment report and maps of core koala habitat (in a GIS data format) must be provided to the Environment, Energy and Science Division of the Department of Planning, Industry and Environment for updating the Biodiversity Values Map and Category – 2 Sensitive regulated land on the Native Vegetation Regulatory Map and any koala and flora survey records are to be added to the NSW BioNet.

Glossary

| Term | Definition |
|---|---|
| BC Act | <i>Biodiversity Conservation Act 2016.</i> |
| Core koala habitat | core koala habitat means— (a) an area of land where koalas are present, or (b) an area of land— (i) which has been assessed by a suitably qualified and experienced person in accordance with the Guideline as being highly suitable koala habitat, and (ii) where koalas have been recorded as being present in the previous 18 years. |
| DA | Development application. |
| DPI&E | NSW Department of Planning, Industry and Environment. |
| EP&A Act | <i>Environmental Planning and Assessment Act 1979.</i> |
| EPBC Act | <i>Environment Protection and Biodiversity Conservation Act 1999.</i> |
| KMA | Koala Management Area. These are the regions listed in the Schedules of the SEPP and were derived from the Koala Tree Species Index as part of the Koala Habitat Information Base. Sometimes also referred to as Koala Modelling Region (KMR). |
| Koala Development Application Map | The Koala Development Application Map in the SEPP. |
| KPoM | Koala plan of management. |
| LGA | Local Government Area. |
| LLS Act | <i>Local Land Services Act 2013.</i> |
| EES Division | Environment, Energy and Science Division of DPIE (formerly Office of Environment and Heritage). |
| Site area | Includes both a development footprint and the broader area of land on which the development is proposed (i.e. the subject lot). The controls within the SEPP apply to both direct and indirect impacts and all potential habitat on the site area therefore needs to be considered even if no vegetation is to be cleared. |
| Site Investigation Area for Koala Plans for Management Map | The Site Investigation Area for Koala Plans of Management Map in the SEPP. |
| Suitably qualified and experienced person | suitably qualified and experienced person means a person who has— (a) a tertiary qualification in ecology, environmental management, forestry or other equivalent qualifications, and (b) experience in flora and fauna identification, survey and management, including experience in conducting koala surveys in accordance with the techniques specified in the Guideline. |

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